Claims

The claims are amended as follows:

1. (Currently Amended) A focused search method of a fixed codebook, the method comprising:

calculating absolute values of correlation vectors of respective pulse locations of tracks 0, 1, 2, and 3 included in the fixed codebook and arranging the pulse locations in a descending order of the absolute values; ~~and~~

selecting a predetermined number of pulse locations for each track among candidate pulse locations arranged and conducting focused search of the selected result; and

using the focused search to encode the pulse locations.

2. (Currently Amended) A focused search method of a fixed codebook, the method comprising:

calculating absolute values of correlation vectors for respective pulse locations of tracks 0, 1, 2, and 3 included in the fixed codebook;

arranging the pulse locations according to the absolute values of the correlation vectors in each track of the tracks 0, 1, 2, and 3;

selecting candidate pulse locations to be subjected to focused search in each track of the tracks 0, 1, 2, and 3;

setting a threshold value in consideration of the selected candidate pulse locations;

summing the absolute values of the correlation vectors for each track;

determining whether the summed value is greater than the threshold value;

searching for pulse locations of track 3 if the summed value is greater than the threshold

value and terminating search if the summed value is equal to or smaller than the threshold value;

determining whether all pulse location combinations of the tracks 0, 1, and 2 are completely searched for after search of the track 3 is conducted; ~~and~~

increasing the respective pulse locations of the tracks 0, 1, and 2 by one and feeding back to step of summing the absolute values of the correlation vectors if the all pulse location combinations are not completely searched for; and

using the completed searches to encode the pulse locations.

3. (Original) The method of claim 2, wherein in arrangement of the pulse locations, the pulse locations are arranged in a descending order according to the absolute values of the correlation vectors.

4. (Original) The method of claim 2, wherein in selection of the candidate pulse locations, a predetermined number of candidate pulse locations for each track are selected in a descending order of the absolute values of the correlation vectors.

5. (Original) The method of claim 2, wherein the threshold value is obtained by a function of a maximal correlation value and an average correlation value which are calculated using a predetermined number of pulse locations selected for each track in the tracks 0, 1, and 2.

6. (Original) The method of claim 2, wherein the threshold value is obtained by the following Equation:

$$C_{thr}^{M} = C_{av}^{M} + K(C_{max}^{M} - C_{av}^{M}),$$

wherein c_{max}^{M} is a maximal correlation value, c_{av}^{M} is an average correlation value, M

represents the number of the candidate pulse locations selected for each track, and T_0, T_1, and T_2 are the tracks 0, 1, and 2, respectively.

7. (Original) The method of claim 6, wherein the maximal correlation value is obtained by the following Equation:

$$C_{max}{}^{M} = \max | d(T_0 | + \max | d(T_1 | + \max | d(T_2 |$$

wherein M represents the number of the candidate pulse locations selected for each track, T_0, T_1, and T_2 are the tracks 0, 1, and 2, respectively, and d represents the correlation vector.

8. (Original) The method of claim 6, wherein the average correlation value is obtained by the following Equation:

$$C_{av}{}^{M} = \frac{1}{M}\left\{\sum_{n=0}^{M-1} d_{re}(5n) + \sum_{n=0}^{M-1} d_{re}(5n+1) + \sum_{n=0}^{M-1} d_{re}(5n+2)\right.$$

wherein M represents the number of candidate pulse locations selected for each track and d.sub.re(n) represents newly-designated correlation vectors for the absolute values of the correlation vectors arranged in a descending order.

9. (Original) A computer readable medium having embodied thereon a computer program for a focused search method of claim 2.

10. (Currently Amended) A focused search apparatus of a fixed codebook comprising:

an absolute value calculator which calculates absolute values of correlation vectors of respective pulse locations of tracks 0, 1, 2, and 3 included in the fixed codebook;

a pulse location arrangement unit which arranges pulse locations in each track of the tracks 0, 1, 2, and 3 according to the absolute values of the correlation vectors calculated in the absolute value calculator;

a pulse location selector which selects candidate pulse locations to be subjected to focused search in each track of the tracks 0, 1, 2, and 3;

a threshold value setting unit which sets a threshold value in consideration of the selected candidate pulse locations;

an absolute value summer which sums the absolute values of the correlation vectors of the respective pulse locations of the tracks 0, 1, and 2;

a determination unit whether determines whether the summed value is greater than the threshold value;

a unit for searching for pulse locations of track 3 if the summed value is greater than the threshold value; and

a search completion determination unit which determines whether all pulse location combinations of the tracks 0, 1, and 2 are completely searched for after search of the track 3 is conducted, the completed searches to be used for encoding the pulse locations.

11. (Original) The apparatus of claim 10, wherein the pulse location arrangement unit arranges the absolute values of the correlation vectors in a descending order in each track of the tracks 0, 1, 2, and 3.

12. (Original) The apparatus of claim 10, wherein the pulse location selector selects a predetermined number of candidate pulse locations for each track in a descending order of the absolute values of the correlation vectors.

13. (Original) The apparatus of claim 10, wherein the threshold value setting unit sets a threshold value by a function of a maximal correlation value and an average correlation value using a predetermined number of pulse locations selected for each track.